Mineral Profile of New Zealand Grown Pine Nuts (*Pinus pinea*)

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New Zealand grown pine nuts (*Pinus pinea* L.) are a relatively new product and are a growing sector of the tree nut industry in New Zealand. It is estimated that 36,080 tonnes of pine nut kernels were produced globally in 2011.

New Zealand imported 22 tonnes of pine nut kernels for domestic consumption in 2010. Pine nuts have many nutritional qualities that make them very different compared to other tree-nut crops.

In this study a complete mineral analysis of five different species of pine nuts currently being grown in New Zealand was carried out (Table 1).

Table 1. Mineral content of 5 different New Zealand grown pine nuts (mg/kg).

	Al	B	Ca	Cr	Cu	Fe	K	Mg	Mn	Na	Ni	P	S	Zn
Chinese White Pine (*Pinus armandii*)	33.2	41.9	322.3	nd	30.7	150.5	13,590.2	6,978.4	127.4	6.4	4.1	16,790.9	5,826.7	200.5
Swiss Pine (*Pinus cembra*)	32.9	27.8	172.8	nd	15.3	89.6	11,478.9	4,883.8	55.4	2.5	1.8	11,216.5	5,019.5	94.2
Coulter Pine (*Pinus coulteri*)	nd	14.54	273.2	0.3	28.3	117.0	14,531.5	7,500.2	88.9	nd	2.7	19,268.9	7,384.7	266.5
Stone Pine (*Pinus pinea*)	32.1	39.2	486.2	0.7	44.3	142.8	14,538.7	7,880.7	116.9	228.9[1]	13.9	19,817.8	7,891.8	166.4
Torrey Pine (*Pinus torreyana*)	18.8	30.2	264.7	0.6	35.9	81.9	12,597.0	7,493.0	147.6	3.2	12.8	18,208.3	4,976.5	184.6
Mean	***29.3***	***30.7***	***303.8***	***0.5***	***30.9***	***116.4***	***13,347.3***	***6,947.2***	***107.2***	***4.0***	***7.1***	***17,060.5***	***6,219.8***	***182.4***
Supermarket (Not grown in N.Z.)	53.3	22.8	180.7	nd	21.1	62.6	8,052.6	3,521.4	134.7	nd	3.8	7,556.2	2,807.5	85.6

[1] Added salt during processing, value excluded from mean

The New Zealand grown pine nuts have a better profile of the important minerals, compared to pine nuts grown overseas. This is likely due to a combination of soil and climate conditions as well as the type of cultivar (Table 1).

Table 2. Comparison of New Zealand stone pine (*Pinus pinea* L.) mineral content (mg/kg) to a range of common edible nuts.

	Al	B	Ca	Cr	Cu	Fe	K	Mg	Mn	Na	Ni	P	S	Zn
Stone Pine (Vanhanen, 2012)	32.1	39.2	486.2	0.7	44.3	142.8	14,538.7	7,880.7	116.9	4.0	13.9	19,817.8	7,891.8	166.4
Almonds (Moodley, 2007)	*	*	5,392.4	0.94	23.7	71.5	*	5,424.1	25.8	*	*	*	*	49.7
Brazil (Moodley, 2007)	*	*	7,324.8	1.34	59.4	74.3	*	9,678.5	3.4	*	*	*	*	110.3
Cashew (Ologunde, 2011)	*	*	173.0	*	10.7	153.6	2,967.7	2,725.5	50.7	4,557	*	287.1	*	38.6
Hazelnut (Matthäus , 2012)	*	45.0	806.3	0.9	11.9	20.1	8,105.5	655.5	33.2	264.2	0.8	3,203.3	*	8.9
Macadama (Moodley, 2007)	*	*	3,376.1	1.3	18.9	68.1	*	4,886.5	88.6	*	*	*	*	38.4
Pecan (Moodley, 2007)	*	*	2,088.4	2.0	35.5	105.8	*	4,197.0	196.6	*	*	*	*	137.8
Walnut (Cosmulescu, 2009)	2.3	*	619.2	5.3	22.4	46.0	4,140	2,166	115.4	7.4	*	3,460	*	26.2

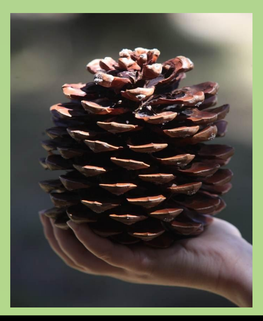
* = no data

Compared to other tree nuts, pine nuts are a good source of Fe, K , Mg, Mn, P and Zn (Table 2).

Table 3. Recommend daily intake (RDI) of minerals and percentage provided by the consumption of 50 g of New Zealand grown stone pine.

	RDI (mg/day)	% of RDI (50 g pine nuts/day)
Ca	1,000 – 1,300	2.4 – 1.8
Cr	25 – 35[1,2]	140 - 100
Cu	1.2 – 1.7[1]	184 – 130
Fe	8 – 18	89 – 39
K	2,800 – 3,800[1]	26 – 19
Mg	310 – 420	127 – 94
Mn	5.0 – 5.5[1]	117 – 107
Na	460 – 920[1]	0.05 – 0.02
P	1,000	96
Zn	8 – 14	104 - 59

[1] Adequate intake, [2] µg/day.



Just 50 g of pine nuts per day in your diet can provide more than or a significant amount of your RDI for Cr, Cu, Fe, Mg, Mn, P and Zn (Table 3).

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